It is telling that the aerial photograph, taken by NASA of the Narryer Gneiss Terrane of the Yilgarn Craton (otherwise known as the Jack Hills region of Western Australia), that Nicholas Mangan has appropriated for his A World Undone project looks much like a microscopic photograph of human skin: striated with rivulets like capillaries, crevices like wrinkles. This is so because Mangan's expanded sculptural practice, which encompasses film and photography, frequently brings into focus the formal, physical and philosophical relationship between the macro and the micro, the concept of long-time shot through with concerns of the contemporary. Mangan braids these opposing vantages together through a series of compositional devices that draw out formal resonances between different points on these vast scalar spectrums. In turn, these formal resonances typically couch a suite of more nuanced historical, scientific or political parallels, which the artist reconfigures in his work.

For A World Undone (2012), this constellation of points plots out a map detailing, in the artist's words, 'our relationship to the cosmos of materials we use and inhabit' - namely mineral resources and the processes of their extraction from the land. The twinned, vertical activities of mining and archaeology here present themselves to be apposite methodologies for examining the way long- or geological time is perforated by the concerns of the contemporary, literally: by the demands of the commercial mining and knowledge industries alike. The physical gesture of digging downward through the sedimentary strata of the earth brings the distinct temporality of geological or long-time into stark juxtaposition with the contemporary - the human here and now of the digging. Through mining or archaeology, these opposing temporalities are revealed as conterminous on a new vertical axis. The mineral substance that is addressed by Mangan's A World Undone project is possibly the oldest geological mineral formed on earth: 4,404 + -8million-year-old zircon crystal - part of the aggregated red rock material at Jack Hills (pictured in the NASA aerial photograph), which is thought to have been formed roughly 150 million years after the earth came into being. These crystals, in fact, are believed to be products of an ancient crust that developed on the surface of the earth in between 'periods of intense meteor bombardment''; that is, they are thought to have partly comprised this planet's first terrestrial skin.

Earlier in 2012, Mangan sourced a sample of this rock containing zircon crystal from Jack Hills which he then proceeded to crush into crumbs, and then granular dust. This process was carried out along the methodological lines of a disaggregation, or what Robert Smithson - an important precursor to Mangan's thinking - famously spoke of in terms of entropy: the reversal or decline of discrete matter into a state of disorder. In the video work A World Undone, Mangan filmed these granular particles in airborne flux set against a black backdrop with a slow motion HD camera. In so doing, he both captured the dust particles' movement with microscopic detail and dislocated this movement from earthly time by slowing down the footage - shooting 2,400 frames per second as opposed to the standard rate of 24. At this speed, the specks of dust become epic: moving slowly, silently, and with a hint of gravitational force through the blank, black space. With no clear context or scalar referents discernible within the frame, the footage of these drifting particles is reminiscent of 'documentary images of meteorite

circularity, almost as if the poles of the vertical line along which we have passed were bent to meet one another'.

Something of this symmetry is also felt in A World Undone. By establishing a visual correlation between macro cosmic matter like asteroid belts and the micro-sized specks of disaggregated dust, A World Undone marries the earth's becoming, emblematised by the invisible particles of zircon embedded in the red rock dust, with its unbecoming - what the artist has described as an 'inverted cosmos'. Here, the earth's first terrestrial crust has been smashed and filmed in a state of dematerialisation, and Mangan presents the two processes of becoming and unbecoming as formally poised so as to mirror one another. In this gesture, chronological progression is warped and replaced with a decidedly non-linear temporality, which functions to destabilise (or perhaps at least expand) human conceptions of scale and time. This shift towards an anti-correlationist treatment of scale is also what distinguishes the relationship set-up between the macro and micro in A World Undone from that sketched by the Eameses (here working for IBM) in Powers of Ten, the latter of which ultimately frames the ascent into deep outer space with a human scalar referent (the sleeping man's hand) and the acousmatic voice of a human narrator (which is notably calm, male, scientific and American accented).

In the two photographic works of the A World Undone project, Mangan contrasts different modes of scalar quantification to further destabilise anthropocentric hierarchies of perception. Matter over mined (for a world undone) (2012) shows a small pick axe, a chunk of the red rock material from Jack Hills, and three small plastic zip-locked specimen bags containing samples of this crushed rock neatly $% \left({{{\left[{{{\left[{{{c_{{\rm{m}}}}} \right]}} \right]}_{\rm{m}}}}} \right)$ assembled on a bright green, square-centimetre gridded mat. The pale blue lines of the grid are so perfectly aligned at right angles with the surface of the picture plane that they seem to echo the weave of a canvas and thus the medium-specificity of painting (its two-dimensionality), as Rosalind Krauss would argue. The heavy black shadows cast by the axe and the chunk of rock, and the crisp reflections caught in the puckered surfaces of the zip-lock bags, however, dramatically rupture the effect of two-dimensionality created by the grid. Here, two opposing modes of representation jostle for dominance, each working to undo the other. The same tension is established between methods of measurement. The zircon crystal embedded in the aggregated rock material pictured in Matter over mined (for a world undone) is an invaluable resource to scientists who, since its discovery in 2003, have been looking to it in order to ascertain the date of the initial cooling of the earth's crust by analysing the rate of decay of isotopes in the zircon. This form of measurement that is, importantly, internal or immanent to the rock matter itself, is likewise thrown into violent relief by the backdrop of the grid corresponding to the standard metric system, itself synonymous with humanist rationalism - the Euclidean grid.

Matter over mind (2012), on the other hand, depicts the rock matter contrasted with a form of scholarly measurement - it is photographed sitting atop a copy of the British geologist and geochronologist Arthur Holmes's 1944 book Principles of Physical Geology, which too is shown to be pervious to the weight of time with its spine striated with lines of wear at different stress points. The brute juxtaposition of geology and language here recalls Smithson's 1966 drawing A Heap of Language, in which a litany of words pertaining to language itself (like 'babel', 'terminology', 'letters', 'etymology') are sketched as piled up into a mound against the backdrop of a hand-drawn metric grid. This form is likewise echoed in Mangan's sculpture A World Undone (protolith) (2012) (not featured in this exhibition), in which the artist has dropped zircon dust into a thin rectangular glass terrarium supported by a minimal aluminum frame. Here, the falling dust naturally aggregated in the centre of the glass container, gently sloping off to either side to create the familiar mound form. Bisected like an ant farm by the thin glass frame, the cross section of the mound reveals subtle strata formed by variances in the colour of the dust.

geology, which renders the temporal material and the methodology of excavation, as a temporal progression on a vertical axis. In 'History and the Social Sciences: The Longue Durée', the French historian Fernand Braudel famously outlined a tripartite schema for envisaging historical time that may be useful in seeking to understand this aspect of Mangan's work. Braudel's three-part schema comprises: 1) the long view or la longue durée, a temporal framework that is epic in its scope and 'almost glacial in its registration of change' (such as geological time); 2) the middle view, which pivots around the development of cultures and societies; and 3) the short view, which relates to the reportage of individual events (histoire événementielle). While Braudel concludes that the latter such events are miniscule, minor or insignificant in comparison with the long view (a similar allegory is also seemingly made in Matter over mined, where the worn-out copy of Principles of Physical Geology is literally shown to be subordinate to geological matter), he advocates that the key to understanding such events likely lies in centuries- or even millennia-old histories. That is, Braudel believed that the short view could be refracted through the long view by articulating historical continuities at the level of superstructure (of democracy or economy, for example).

In her book on time in the art of the 1960s (when artists like Robert Smithson rose to prominence), art historian Pamela Lee draws a bow between Braudel's idea of the comparatively microscopic *histoire événementielle* and the macroscopic gaze of the *longue durée* beautifully. She writes:

Events are dust ... dust in the sense of their smallness and evanescence: they are particular in the ways that dust particles are particular. Events are dust because, in their finiteness, they speak to the historical finitude and the relative triviality of events compared to the broad span of the longue durée.'

In this way, Lee shows that Braudel's strands of historical time function to illuminate one another when they intersect and overlap: through macro-micro correspondence. Focusing on the minute zircon dust particles from Jack Hills, Western Australia - dust particles that are at once an insignificant 'event' and constitutive of a 4,404 million-year-old history - A World Undone weaves multiple and conflicting temporalities into such a correspondence, holding them together through a chain of formal resonances that, simultaneously, signals their antinomy.

Helen Hughes, 2012

showers, cosmic dust or an asteroid belt'; the polar relationship between the micro and the macro is cast into radical ambiguity.

In 1977, Charles and Ray Eames famously drew a pictorial arc between the macro and micro scale of things in the universe in their short documentary film Powers of Ten. This film is centred by a microscopic analysis of human skin on the back of a sleeping picnicker's hand (incidentally echoing Mangan's appropriation of the aerial imagery of the Jack Hills topography), which is juxtaposed with an extreme macroscopic perspective that zooms out to encompass the scope of the observable universe. In an article for Cabinet magazine in 2011, Mark Dorian spoke of the 'uncanny feeling of symmetry' conveyed by this film's zooming voyage: from the macro vision of outer space to the microscopic analysis of the nucleus of a carbon atom in the man's hand. Dorian refers to the images at either end of the Eameses' scalar spectrum as being 'visually consonant' and, as such, 'endow[ing] the film with a strange

What precisely A World Undone seeks to undo, then, is a centralised notion of perception — both spatial and temporal — by contrasting and confusing different modes of scalar measurement. These concerns are partly synthesised through the trope of 1 NICHOLAS MANGAN, ARTIST STATEMENT, 2012.

² 'JACK HILLS, CUE, WESTERN AUSTRALIA, AUSTRALIA', AUSTRALIAN HERITAGE DATABASE, WWW.ENVIRONMENT.GOV.AU/; ACCESSED 2012.

³ NICHOLAS MANGAN, ARTIST STATEMENT, 2012.

⁴ MARK DORIAN, 'ADVENTURE ON THE VERTICAL', CABINET, ISSUE 44, NO. 42 (WINTER 2011-12), WWW.CABINETMAGAZINE.ORG/ISSUES/44/DORRIAN.PHP; ACCESSED 2012.

S NICHOLAS MANGAN, ARTIST STATEMENT, 2012.

 6 SEE: ROSALIND KRAUSS, 'GRIDS', OCTOBER, VOL. 9 (SUMMER, 1979), PP. 50-64.

⁷ PAMELA M LEE, CHRONOPHOBIA: ON TIME IN THE ART OF THE 1960S, MASSACHUSETTS: THE MIT PRESS, 2004, P. 301.

